

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference CML00596JC	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US04/02614	International filing date ( <i>day/month/year</i> ) 30 January 2004 (30.01.2004)	(Earliest) Priority Date ( <i>day/month/year</i> ) 31 January 2003 (31.01.2003)
Applicant MOTOROLA, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:
 

☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
2. ☐ **Certain claims were found unsearchable** (See Box I).
3. ☐ **Unity of invention is lacking** (See Box II).
4. With regard to the **title**,
 

☒ the text is approved as submitted by the applicant.  
☐ the text has been established by this Authority to read as follows:
5. With regard to the **abstract**.
 

☐ the text is approved as submitted by the applicant.  
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.
 

☐ None of the figures

☐ because the applicant failed to suggest a figure.  
☐ because this figure better characterizes the invention.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/02614

## Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

### NEW ABSTRACT

To provide high-quality communication even when the power for synchronization preamble is reduced in an OFDM communication system, an OFDM communication transmitter obtains a zero amplitude reduced preamble signal by passing a specified synchronization preamble through an ideal low-pass filter (10) to reduce a signal component near zero amplitude within a time domain and time-multiplexes (11) the obtained zero amplitude reduced preamble signal with transmit data to generate an OFDM transmit signal. A receiver section (20) of the OFDM communication system determines the cross correlation (19) between a receive signal and a specified synchronization preamble (17), which is patterned the same as the counterpart in a transmitter section of the OFDM communication system, and detects a synchronization position in accordance with the determined cross correlation.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/02614

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04L 27/28; H04K 1/10

US CL : 375/260; 370/210

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 375/222, 260, 295, 354, 365, 368; 370/208, 210

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2001/0022810 A1 (JOO) 20 September 2001 (20.09.2001), entire document.	1-10
A	US 6,381,251 B1 (SANO et al) 30 April 2002 (30.04.2002), Figures 1 and 6.	5-10
A, P	US 6,658,063 B1 (MIZUGUCHI et al) 02 December 2003 (02.12.2003), Figure 1.	5-10

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

21 July 2004 (21.07.2004)

Date of mailing of the international search report

19 AUG 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Betsy L. Deppe

Telephone No. (703) 305-4700

**INTERNATIONAL SEARCH REPORT**

PCT/ISA/02614

**Continuation of B. FIELDS SEARCHED Item 3:**

EAST (USPAT: USPGPub; JPO; EPO; Derwent)

OFDM or multicarrier or multitone or DMT: low pass filter; synchronization; correlat\$4; preamble